

Work Order ID 131490

Friday, April 10, 2015 7:55:33 AM

131490

Page 1

Item ID: D206-667-103RLC

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Fwd Crosstube - High 206L / L1 / L3 / L4

Start Date: 4/10/2015 Start Qty: 1.00

1

Cust Item ID:

Required Date: 4/10/2015 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: *MCS*Date: *1504-10* Tooling:

Date:

Run Start ***NR1***

QC:

Date: SPC (Y/N):

Date:

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D206-667-143	Rev C (DEO)								
DSI9565	A								
DSI9628	A								
100	Document Control	0.00							
100	DOCUMENT CONTROL								
DC	Memo	0.00							
Doc.Control -USB or Paperwork	Photocopy bluefile and create labels as per PPP D206-667-103 CHG006								
110	Pick Kit	0.00							
110	Packaging								
Packaging	Memo	0.00							
Packaging									

**DMS
27
9-89**

AUG 24 2015

**DAS
02
9-89***BL**15/07/08*

Work Order ID 131490

Friday, April 10, 2015 7:55:33 AM

131490

Page 2

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Reference:

Approvals: Process Plan: Date: Tooling: Date:

Run Start ***NR1***

QC: Date: SPC (Y/N): Date:

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120		0.00							
120	BENDING MACHINE - CROSSTUBES								
CNC Bend 2	Memo	0.00							
CNC Alpha 160 Bender	Bend tube as per Dwg D206-667-143 using CNC bender program								
130		0.00							
130	QC15- Crosstube Dimensional Check								
QC	Memo	0.00							
Quality Control									

Bc

15/07/08

DAS
47
9-89

15-07-21

Work Order ID 131490

Friday, April 10, 2015 7:55:33 AM

131490

Page 3

Item ID: D206-667-103RLG
Revision ID:
Item Name: Fwd Crosstube - High 206L / L1 / L3 / L4

Accept

N900040100Setup Start ***NS1***Stop ***NS2***Start Date: 4/10/2015 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 4/10/2015 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: Date: Tooling: Date:
QC: Date: SPC (Y/N): Date:

Run Start ***NR1***Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

140

0.00

140

Crosstubes

0.00

Crosstubes

Memo

***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING*****
VERIFIED BY: *[Signature]* *****

1- Drill holes & ream using drill Jig DT8541 & DT8542 as per Dwg D206-667-143. Drill all (3) top holes. Holes facing inboard.

***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING*****
VERIFIED BY: *[Signature]* *****

2- Drill Fwd rivet holes using drill Jig DT8787 fwd as per Dwg D206-667-143. Note: Fwd side has 3x top holes. Facing inboard.

3- C'sink holes as per Dwg D206-667-143. Allow rivet to sit below surface to compensate for paint.

4- Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins. Drill ONLY 2 top holes ONLY plug most bottom holes to prevent accidental drilling. Drill holes and ream using drill Jig DT8541 & DT8542 as per Dwg D206-667-143. Drill only the top (2) holes.

***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING*****
VERIFIED BY: *[Signature]* *****

5- Drill Aft rivet holes using drill Jig DT8787 aft as per Dwg D206-667-143.

***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING*****
VERIFIED BY: *[Signature]* *****

Work Order ID 131490***131490***

Page 4

Friday, April 10, 2015 7:55:33 AM

Item ID: D206-667-103RLC

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Revision ID:

Stop ***NS2***

Item Name: Fwd Crosstube - High 206L / L1 / L3 / L4

Start Date: 4/10/2015 Start Qty: 1.00

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Cust Item ID:

Required Date: 4/10/2015 Req'd Qty: 1.00

1

Customer:

Reference:

Run Start ***NR1***

Approvals: Process Plan: Date: Tooling: Date:

Stop ***NR2***

QC: Date: SPC (Y/N): Date:

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

6- C'sink holes as per Dwg D206-667-147. Allow rivet to sit below surface to compensate for paint.

7- Scribe part # and batch # using vibrating stylus as per Dwg D206-667-143
Inside of Cuff (Do not engrave on outside of tube)8- *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Deburr
& Inspect for surface damage. Repair damage within limits as per Dwg D206-667-143

-BL

15/07/29

150

QC5- Inspect part completeness to step on W/O 0.00

150

QC

Memo

0.00

Quality Control

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

160

0.00

160

HandFXtube

Memo

0.00

Hand Finishing Crosstubes

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

1- Clean crosstube with wash'n wipe

DAS
49
9-8915/07/24
DAS

41

9-89

15-7-30

Work Order ID 131490

Friday, April 10, 2015 7:55:33 AM

131490

Page 5

Item ID: D206-667-103RLC

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N900040100

Setup Start

NS1

Revision ID:

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NS2

Item Name: Fwd Crosstube - High 206L / L1 / L3 / L4

Start Date: 4/10/2015 Start Qty: 1.00

1

Cust Item ID:

Required Date: 4/10/2015 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180	Outsource process - NDT per QSI038 4.1	0.00							
180									
Outsource2	Memo	0.00							
Outsource process - NDT	*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***								
	Liquid Penetrant Inspection as per QSI 038Or Issue P/O: <u>29323</u> LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order								
190		0.00							
190									
Packaging	Packaging	0.00							
Packaging	Memo	0.00							
Packaging	*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***								
	Ensure copy of NDT results attached to work order.								
200	QC5- Inspect part completeness to step on W/O	0.00							
200									
QC	Memo	0.00							
Quality Control	*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***								

CZ

JUL 30 2015

1X SP15-07-30

JUL 30 2015

DAS
9
9-89

131490

Friday, April 10, 2015 7:55:33 AM

Accept

N900040100

Setup Start *NS1*

Stop *NS2*

Item Name: Fwd Crosstube - High 206L / L1 / L3 / L4

Start Date: 4/10/2015 **Start Qty:** 1.00 ***1***

Cust Item ID:

Required Date: 4/10/2015 **Req'd Qty:** 1.00 *** 1 ***

Customer:

Reference:

Run Start *NR1*

Approvals: _____ **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Stop *NR2*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

[illegible]

Work Order ID 131490***131490***

Page 7

Friday, April 10, 2015 7:55:33 AM

Item ID: D206-667-103RLC

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Cust Item ID:

Required Date: 4/10/2015 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
210		0.00							DAS
210	SprayPaint								41
SprayPaint	Memo	0.00							9-89
Spray Painting	*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***								15-8-11
	*** MASK AREA UNDER CLAMP PRIOR TO PAINTING AS PER DWG								
	DEO***								
	1-Prime inside and outside crosstube as per QSI 005 4.2								
	2-Paint outside crosstube with White Imron as per QSI 005 4.2								
	PRIME: <u>132384</u>								
	Start Time: <u>700</u>								
	Finish Time: <u>800</u>								
	PAINT: <u>132422</u>								
	Start Time: <u>1230</u>								
	Finish Time: <u>130</u>								
220	QC14- Inspect Spray Paint	0.00							DAS
220									38
QC	Memo	0.00							9-89
Quality Control	Wrap in plastic bag to protect from scratches								

AUG 18 2015

Work Order ID 131490***131490***

Page 8

Friday, April 10, 2015 7:55:33 AM

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Revision ID:

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Item Name: Fwd Crosstube - High 206L / L1 / L3 / L4

Start Date: 4/10/2015 Start Qty: 1.00

1

Cust Item ID:

Required Date: 4/10/2015 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: Date: Tooling: Date:

Run Start ***NR1***

QC: Date: SPC (Y/N): Date:

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
230		0.00							DAS
230	Crosstubes					1			41
Crosstubes	Memo	0.00							9-89
Crosstubes									15-8-13

INSTALL GROUNDING CLAMP AND SEAL WITH SIKAFLEX AS PER
DWG AND DEO
A/R SIKAFLEX BATCH: 132705

1-Abrade mating surfaces of support and crosstube with 180 grit sandpaper,
clean the area with MEK or equivalent as per dwg

2-Install supports with Proseal 890 per D206-667-143 (DEO) and QSI 015
A/R Proseal 890 Batch: 132655
EXP: 3/16

3-Install supports clamps Using Dt9565 as per Dwg D206-667-143
(DEO), Torque to 80-100 IN-LBS.
PROSEAL CURE TIME 72 HOURS:
Start: 15-8-13
Finish: 15-8-16

4-Install nut plates as per Dwg D206-667-143. Touch-up rivet heads with Imron
paint.

Friday, April 10, 2015 7:55:33 AM

Page 9

Accept

Setup Start *NS1*

Stop *NS2*

Item Name: Fwd Crosstube - High 206L / L1 / L3 / L4

Start Date: 4/10/2015 **Start Qty:** 1.00 ***1***

Cust Item ID:

Required Date: 4/10/2015 **Req'd Qty:** 1.00 *** 1 ***

Customer:

Reference:

Run Start *NR1*

Approvals: _____ **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Stop *NR2*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
240	QC5- Inspect part completeness to step on W/O	0.00							DAS 38 9-89
240									
QC	Memo	0.00							
Quality Control								AUG 18 2015	
	RE-CHECK TORCQUE ON CLAMP AFTER PROSEAL HAS CURED FOR 72HOURS AS PER DWG.								
	VERIFY RESISTANCE PER NOTE 18 AND DWG DEO								
250	Pick Kit	0.00							DAS 287 9-89
250									
Packaging	Memo	0.00							
Packaging								AUG 18 2015	
260	QC4- 100% Inspect kits for completeness	0.00							DAS 02 9-89
260									
QC	Memo	0.00							
Quality Control								AUG 24 2015	

Work Order ID 131490

Friday, April 10, 2015 7:55:33 AM

131490

Page 10

Item ID: D206-667-103RLC

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N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Fwd Crosstube - High 206L / L1 / L3 / L4

Start Date: 4/10/2015 Start Qty: 1.00

1

Cust Item ID:

Required Date: 4/10/2015 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
270	Packaging	0.00							DAS 02 9-89
270									
Packaging	Memo	0.00							
Packaging	Identify and pack for shipping as per PPP D206-667-103								
	Location: _____								
	PPP Rev: _____ <i>offshore</i>								AUG 24 2015
280	QC21- Final Inspection - Work Order Release	0.00							
280									
QC	Memo	0.00							MLS AUG 24 2015
Quality Control									

SA 120150824

Picklist Print

Friday, April 10, 2015 7:55:39 AM

Page 1

Work Order ID: 131490

131490

Parent Item: D206-667-103RLC

D206-667-103RLC

Parent Item Name: Fwd Crosstube - High 206L / L1 / L3 / L4

Start Date: 4/10/2015

Required Date: 4/10/2015

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP REV:A 14.09.23 NEW ISSUE LL VERF:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D206-667-103TRN

Manufactured

No

110

Each

1.0000

1

①

D206-667-103TRN

125682

**

BL 15/07/08

Crosstube Turning Detail

Location

Loc Qty

Loc Code

LG014

1

116472

1

D2873-043

Manufactured

No

230

Each

70.0000

2

2

DAS
41
9-89

15-8-11

D2873-043

133913

**

2

Nut Plate Assembly

Location

Loc Qty

Loc Code

LG

40

128814

40

LG052

30

127801

10

129732

20

D2873-045

Manufactured

No

230

Each

35.0000

2

2

DAS
41
9-89

15-8-11

D2873-045

132618

**

2

Nut Plate Assembly

Location

Loc Qty

Loc Code

LG052

35

125286

5

127534

20

128896

10

Picklist Print

Friday, April 10, 2015 7:55:39 AM

Work Order ID: 131490

131490

Parent Item: D206-667-103RLC

D206-667-103RI C

Parent Item Name: Fwd Crosstube - High 206L / L1 / L3 / L4

Start Date: 4/10/2015

Required Date: 4/10/2015

Start Qty: 1.00

Required Qty: 1.00

D2891-1 Manufactured No

230 Each

27.0000

2

2

DAS

D2891-1

Support 2.25

**

41
9-89

15-8-13

Location	Loc Qty	Loc Code
FG	2	
84164	2	
LG052	25	
114948	1	
120972	4	
128388	10	
129721	10	

D3595-063-395 Manufactured No

230 Each

95.0000

4

4

DAS

D3595-063-395

Rubber Cushion 0.63" wide x 3.95" Long

**

41
9-89

15-8-13

Location	Loc Qty	Loc Code
FG	5	
87353	5	
LG051	90	
115737	4	
130643	86	

RUBBER CUSHION .63" x 3.95" (4)

MS20601-AD4W8

Purchased No

230 Each

138.0000

14

14

DAS

MS20601-AD4W8

RIVET

**

41
9-89

15-8-11

Location	Loc Qty	Loc Code
ST308	138	
M128650	138	

Picklist Print

Friday, April 10, 2015 7:55:39 AM

Page 3

Work Order ID: 131490

131490

Parent Item: D206-667-103RLC

D206-667-103RLC

Parent Item Name: Fwd Crosstube - High 206L / L1 / L3 / L4

Start Date: 4/10/2015

Required Date: 4/10/2015

Start Qty: 1.00

Required Qty: 1.00

MS21920-20

Purchased

No

230

Each

157.0000

4

4

DAS

41

9-89 15-8-13

MS21920-20

Clamp

**

Location

Loc Qty

Loc Code

FG

2

122254

2

LG050

155

155

m128650

4

AN970-4

Purchased

No

250

Each

436.0000

12

12

**

AUG 24 2015

AN970-4

Washer

DAS

6

9-89

Location

Loc Qty

Loc Code

ST273A

400

m129521

400

ST329

36

m127815

36

12

D206-667-017

Manufactured

No

250

Each

2.0000

1

1

**

DAS

41

9-89

D206-667-017

Grounding Strap

15-8-18

Location

Loc Qty

Loc Code

FG

2

97504

2

130888

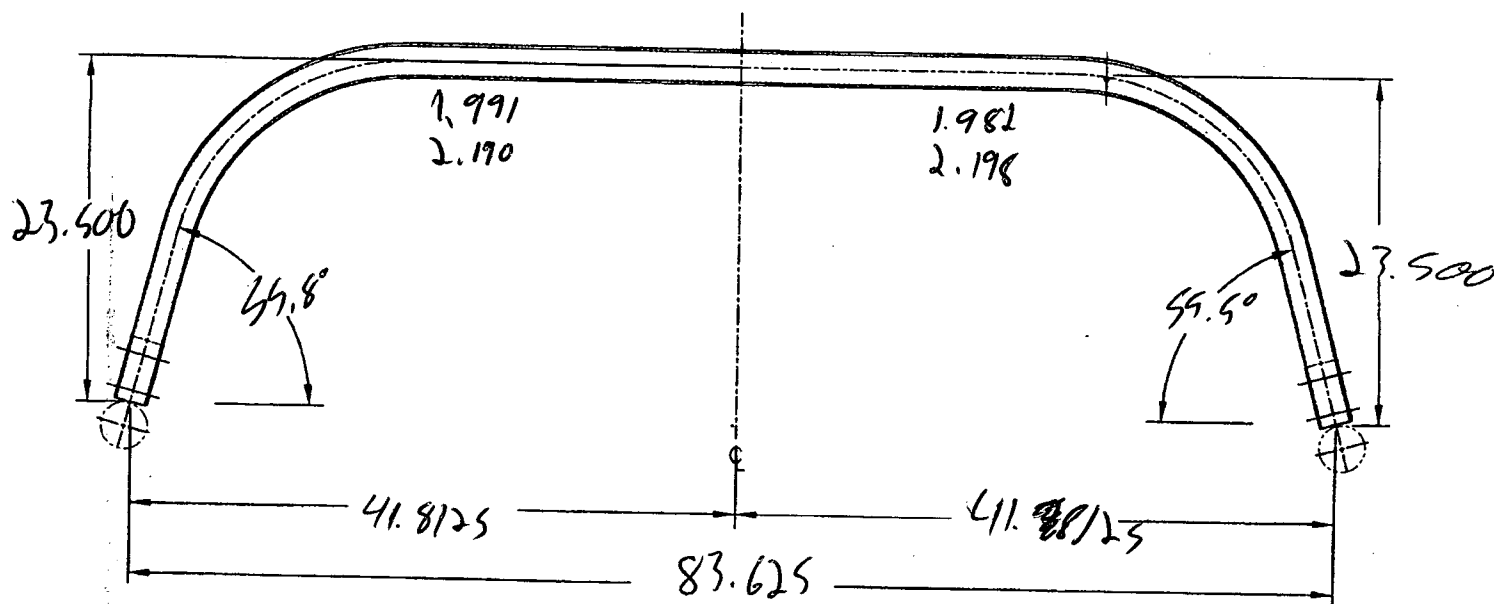
Friday, April 10, 2015 7:55:39 AM

Shop Packet Print

Page 3

DART AEROSPACE LTD		Work Order:	131496
Description: Crosstube High Fwd (206L)		Part Number:	D206-667-103
Inspection Dwg: D206-667-143 Rev: C		Page 1 of 1	

Required Dimension	Min	Max
Height	23.39	23.65
1/2 Span	41.79	42.05
Angle	54	56
Total Span	83.58	84.10
Bending Passes	10	--
Crushing	--	6%



	Side A	Side B
Bending Passes	11	11
Crushing	4.8%	5.2%
Comments		
DAS		
47		

QC15 Inspection	9-89
Date	15-07-21

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	09.06.26	Dimensions updated per Dwg Rev C	KJ	
C	09.10.22	Minimum height dimension revised	KJ	
D	12.04.16	Added bending, crushing dimensions	KJ	

Item	Qty -143	Part Number	Description
1	X	D206-667-143	CROSSTUBE ASSEMBLY (206L HIGH FWD)
2	1	D6002-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2891-1	SUPPORT
6	4	D3595-063-395	RUBBER CUSHION
7	4	MS21920-20	CLAMP (OR MS21920-21)
8	14	MS20601AD4W8	RIVET (OR NAS9302B-4-8)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6002-115
FINISHED LENGTH = 104.98±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-143" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 15.5 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY. TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 10 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-20 CLAMPS (OR -21) WITH D3595-063-395 RUBBER CUSHIONS TO SECURE THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

131490 MJS
1504-10

000 #1-615
11.07.28

UNDER REVIEW

DEO ATTACHED RELEASED
28/11/12 MJS

C	REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-395 WAS D2856-400-694 (ZN D6-2 & A5-2); REMOVED REF. & ADD TOLERANCE (ZN D3-3, C4-3, C5-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.06
B	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKUDTUBES	PH	05.07.26
A	NEW ISSUE	CP	00.11.17
REV.	DESCRIPTION	BY	DATE
DESIGN	9P	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA DRAWING NO. REV. C D206-667-143 SHEET 1 OF 4 TITLE SCALE CROSSTUBE ASS'Y (206L HIGH FWD) NTS COPYRIGHT © 2006 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR DISSEMINATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	
DRAWN	RF		
CHECKED	9P		
MFG. APPR.	9P		
APPROVED	9P		
DE APPR.	9P		
DATE	08.11.06		

8 7 6 5 4 3 2 1

12 D2891-1 SUPPORT
2 PL

15 MS21920-20 CLAMP
4 PL

13 D3595-063-395
RUBBER CUSHION
4 PL, (UNDER CLAMP)

B

B

C

D206-667-143
ASSEMBLY DETAIL
(VIEW LOOKING FWD)

DEO ATTACHED

EO 11.615
11.07.26

UNDER REVIEW

11.09.13

A

A

C

C

D2873-043
NUT PLATE

MS20601AD4W8
RIVET, 4 PL

D2873-045
NUT PLATE

MS20601AD4W8
RIVET, 3 PL

90°
REF

VIEW A-A:
CUFF DETAIL
SCALE 4X

13 15
MS21920-20 CLAMP REF

12
D2891-1 SUPPORT REF

C D3595-063-395
RUBBER CUSHION REF

6°

FWD

SECTION B-B
SCALE 5X

D2873-043
NUT PLATE

MS20601AD4W8
RIVET, 4 PL

D2873-045
NUT PLATE

MS20601AD4W8
RIVET, 3 PL

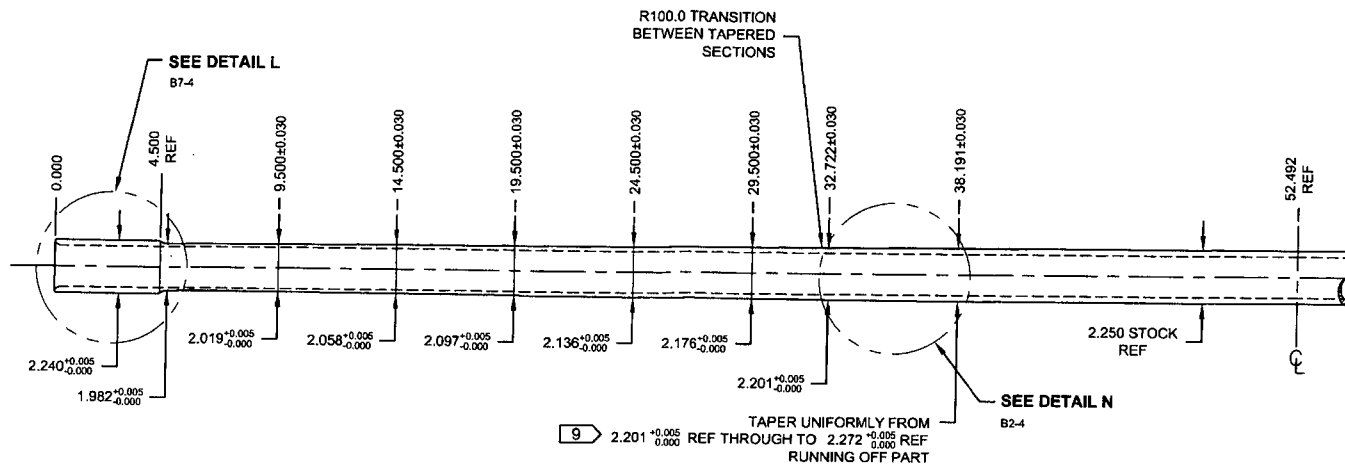
90°
REF

VIEW C-C:
CUFF DETAIL
SCALE 4X

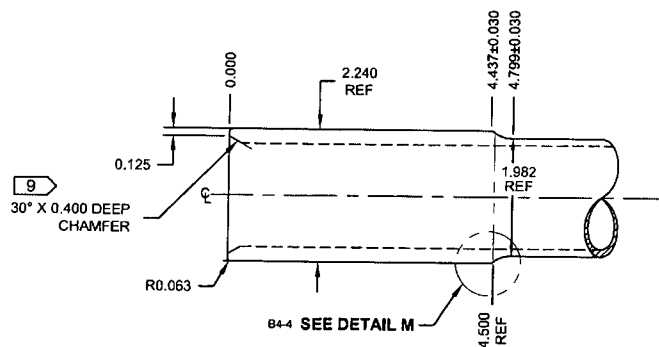
RELEASED
06/11/12

DESIGN	97	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	97	DRAWING NO.	REV. C
MFG. APPR.	97	D206-667-143	SHEET 2 OF 4
APPROVED	97	TITLE	SCALE
DE APPR.	97	CROSSTUBE ASSY (206L HIGH FWD)	NTS
DATE	08.11.06	COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL, AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE REPRODUCED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

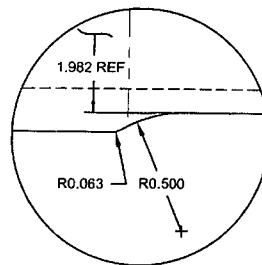
8 7 6 5 4 3 2 1



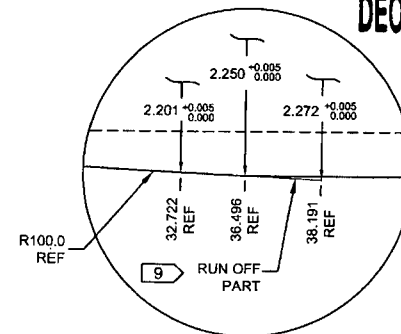
TURNING DETAIL



DETAIL L:
D7-4 **CROSSTUBE CUFF**
NOT TO SCALE



DETAIL M:
A6-4 **CUFF TRANSITION**
NOT TO SCALE



DETAIL N:
C4-4 **TAPER RUN-OFF**
NOT TO SCALE

BCO #11-615
11.07.26

UNDER REVIEW

DEO ATTACHED

RELEASED
08/11/12

DESIGN	90	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	CP	DRAWING NO.	REV. C
MFG. APPR.	CP	D206-667-143	SHEET 4 OF 4
APPROVED	CP	TITLE	SCALE
DE APPR.	CP	CROSSTUBE ASS'Y (206L HIGH FWD)	NTS
DATE	08.11.06	COPYRIGHT © 2006 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

DRAWING NO. D206-667-143	TITLE CROSSTUBE ASS'Y (206L-HIGH FWD)	REV. C	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D206-667-143-C-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>Q</i>	CHECKED <i>ASS</i>	MFG. APPR. <i>MB</i>	APPROVED <i>MD</i>		DE APPR. <i>#</i>		
DATE 11.07.15	DATE 11.07.20	DATE 11.07.21	DATE 11/07/21		DATE 11.07.21		

PURPOSE:

REPLACE MAGNOBOND WITH PROSEAL.

CHANGE:

IS:

Item	Qty -143	Part Number	Description
9	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

WAS:

9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
---	-----	----------------	---

NOTE 12 & 15, SHEET 1 IS AMENDED AS FOLLOWS:

IS:

- 12) TO INSTALL D2891-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. **PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.**

WAS:

- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

RELEASED
2011-07-28
MD

DRAWING NO. D206-667-143		TITLE CROSSTUBE ASS'Y (206L HIGH FWD)		REV. C DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D206-667-143-C-2		SHEET NO. SHEET 1 OF 1		SCALE NTS	
DRAWN AJS		CHECKED		MFG. APPR. <i>E</i>		APPROVED <i>AP</i>		DE APPR. <i>BS</i>			
DATE 12.08.02		DATE 12.08.02		DATE 12.08.02		DATE 12.08.02		DATE 12.08.02			

PURPOSE:

ADD ELECTRICAL GROUNDING STRAP

CHANGE:

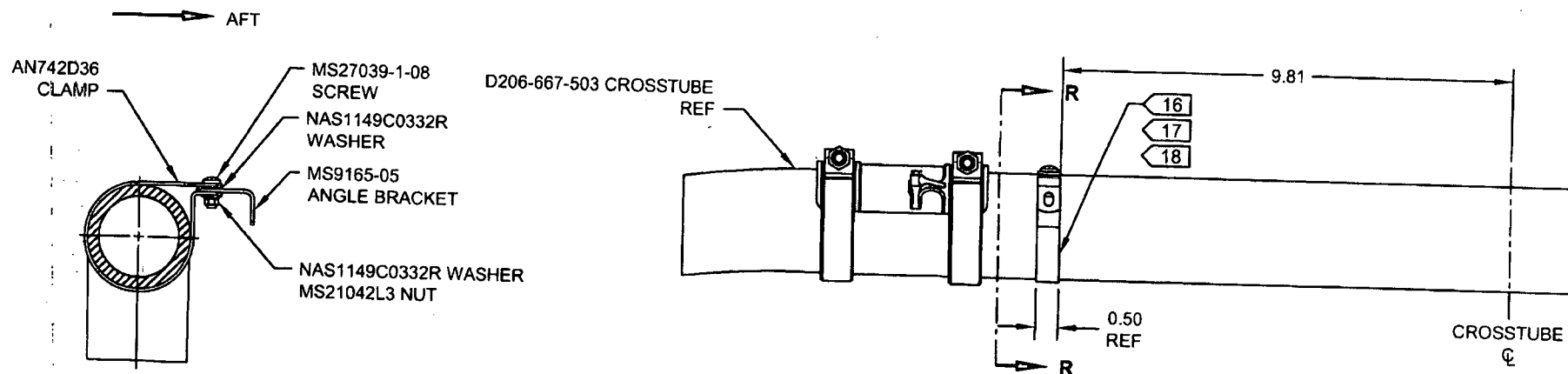
PARTS LIST:

ITEM	QTY -143	PART NUMBER	DESCRIPTION
1	X	D206-667-143	CROSSTUBE ASSEMBLY (206L HIGH FWD)
10	2	AN742D36	CLAMP
11	2	MS9165-05	ANGLE BRACKET
12	2	MS21042L3	NUT (OR MS21042-3)
13	2	MS27039-1-08	SCREW
14	4	NAS1149C0332R	WASHER (OR AN960C10L)

GENERAL NOTES:

- 16) MASK AREA UNDER CLAMP PRIOR TO PAINTING
- 17) SEAL EDGES WHERE AN742D36 CLAMP MEETS WITH THE CROSSTUBE USING SIKAFLEX-241/-291 OR MIL-S-8802 CLASS B2 OR PROSEAL 890 SEALANT
- 18) PERFORM RESISTANCE CHECK TO ENSURE MAX RESISTANCE IS 10 MILLIOHMS

RELEASED
Q 12.08.17
 ECN 12-631



SECTION R-R

DETAIL P
 BONDING STRAP INSTALLATION 2 PL

DART SERVICE INSTRUCTION

TO AMEND INSTRUCTIONS FOR CONTINUOUS AIRWORTHINESS ICA-D206-667 Rev. 3 OR LATER
REF. CANADIAN STC: SH01-5
REF. FAA STC: SR01304NY
REF. EASA STC: EASA.IM.R.S.01179

PURPOSE:

The supports on the following crosstubes are now installed using Proseal instead of Magnobond:

D206-667-101 @ CHG 004
D206-667-103 @ CHG 005
D206-667-107 @ CHG 002
D206-667-201 @ CHG 004

D206-667-203 @ CHG 004
D206-667-207 @ CHG 002
D407-667-105 @ CHG 004

CHANGE:

For the crosstubes listed above, section 32.4 of ICA-D206-667 is amended as follows. Use Figures 32-4 to 32-8 of ICA-D206-667 for further reference. For crosstubes of an earlier change number, it is recommended that if the supports are removed, the supports should be reinstalled using the procedure listed below.

32.4 SUPPORT INSTALLATION

- 32.4.1 Locate the area on crosstube for installation of support (ref. Figures 32-4 to 32-8 of ICA-D206-667). For D206-667-101/-103/-107/-201 and D407-667-105 crosstubes, the outward face of the support tabs should be 13.08" (332mm) from the crosstube center. For D206-667-203/-207 crosstubes, the outward face of the support tabs should be 10.03" (255mm) from the crosstube center. Ensure paint finish of crosstube is intact; touch up as required per Chapter 5 (5.3.9) of ICA-D206-667.
- 32.4.2 If present, remove any paint/primer on bottom of supports. Abrade mating surfaces of support and crosstube with 400-grit sandpaper. Saturate a clean cloth with MEK or 4105S Wash'n'Wipe Degreaser or equivalent and wipe until there is no residue.
- 32.4.3 Ensure a layer of 3M Scotch-Weld 2216 B/A Epoxy Adhesive is on the bottom of the support. If required, either apply or touch-up support to have a 0.03" to 0.05" thick layer of adhesive over the entire mating surface. Allow supports to cure for 24 hours.
- 32.4.4 Abrade mating surfaces of support (after cure) and crosstube with 180-grit sandpaper. Saturate a clean cloth with MEK or 4105S Wash'n'Wipe Degreaser or equivalent and wipe until there is no residue.
- 32.4.5 Apply a 0.04" to 0.07" thick layer of Proseal 890 Class B or AMS-S-8802 Class B sealant underneath applicable support and install support.
- 32.4.6 Install the clamps opposite to crosstube support as shown in Figures 32-4 to 32-8 of ICA-D206-667. Install rubber cushions underneath each clamp around the bottom circumference of the crosstube up to the crosstube centerline. Torque clamps 80-100 in-lb (9.0-11.3 Nm). It is acceptable to use smaller or larger sized MS21920-XX clamps than those listed in ICA-D206-667, ensure that after torquing the clamps per this instruction, the nuts are in safety but not bottomed out.
- 32.4.7 Prior to installing crosstube on aircraft, allow supports to cure for 72 hours and recheck torque on clamps.

CANADA
DEPARTMENT OF TRANSPORT
AIRCRAFT CERTIFICATION
BRANCH
DAO # 01-O-01

APPROVED

BY: 
D. SHEPHERD (DE # 02)

DATE: 11.07.20
CERT. NO.: SH01-5
ISSUE NO.: 3

A	NEW ISSUE	CP	11.07.15
REV.	DESCRIPTION	BY	DATE
DESIGN		DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN			
CHECKED	ASS	DRAWING NO.	REV. A
MFG. APPR.	N/A	DSI 9565	SHEET 1 OF 1
APPROVED		TITLE	SCALE
DE APPR.		SUPPORT INSTALLATION CHANGE	NTS
DATE	11.07.15	COPYRIGHT © 2011 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

DART SERVICE INSTRUCTION

TO AMEND INSTALLATION INSTRUCTIONS IIN-D206-667 REV. D AND EARLIER AND
INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA-D206-667 REV. 3 AND EARLIER

REF: CANADIAN STC: SH01-5

REF: FAA STC: SR01304NY

REF: EASA STC: EASA.IM.R.S.01179

PURPOSE:

The purpose of this service instruction is to permanently add the D206-667-017 Kit to the DXXX-667-101/-103/-105/-107 Crosstube kits.

INSTRUCTIONS:

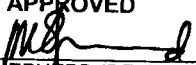
DXXX-667-101/-103/-105/-107 Crosstubes at CHG 005/006/005/003 (respectively) and later are supplied with the D206-667-017 Grounding Strap Kit installed per section 3.2 of IIN-D206-667 Rev. D.

WEIGHT AND BALANCE

There is a negligible weight change associated with the installation of this kit.

CANADA
DEPARTMENT OF TRANSPORT
AIRCRAFT CERTIFICATION
BRANCH
DAO # 01-O-01

APPROVED

BY: 
D. SHEPHERD (DE # 02)

DATE: 12.08.02
CERT. NO.: SH01-5
ISSUE NO.: 3

A	NEW ISSUE (REF CIR 12-3)	AJS	11.08.02
REV.	DESCRIPTION	BY	DATE
DESIGN	AJS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED		DRAWING NO.	REV. A
MFG. APPR.	N/A	DSI 9628	SHEET 1 OF 1
APPROVED		TITLE	SCALE
DE APPR.		GROUNDING STRAP INSTALLATION	NTS
DATE	12.08.02	COPYRIGHT © 2012 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

D206-667-103 bending folio

Batch Number:

2.25 rollers x 3 + 1.6" shims under rollers

buggie shims 3.125" (new buggy), buggy goes on small table/adjust supporting rollers as required.

Lines; **19.75"** and **37.125"** from cuffs.

Only Buggy A used

STEP 1

Run programs 1-2-3-4 starting from **37.125** line with longest part of tube on **small table**, **Y1630 / W3200** programs run down taper.

Approach will automatically set itself after Prog.4 for Prog.10-11-12Make sure laser falls properly on tangent line.

STEP 2

Run programs 10-12 from **19.75"** line CHECK BETWEEN EACH PROGRAM **Y3400 / W3344** . Programs run up taper. Ensure buggy clears table. **small table**

Approaches for prog 13 up are done automatically when program returns to tangent line, helper is to ensure that tangent line falls properly on laser

FOR SIDE B.....MAKE SURE BUGGY DOES NOT TOUCH EDGE OF BENDER TABLE

09-10-14 bent two tubes first one took Side A prog 13 x2.....Side B prog 12B (over bent) was missing 100 thou .from 12A to 12B 10 points last two lines
second tube Side A prog 13..... Side B prog 12

11-06-08 ran 2 tubes, first tube finished @ program 16 both sides, second finished @ 15 both sides. both tubes bent very evenly on each side. after bending according to folio, both tubes ran 12a,13,14,15. one tube required program 16 to finish. JW

12-08-1 ran 2 tubes according to previous note. stopped checking tube at prog 10-11-12. ran: 1,2,3,4,10,11,12, check. ran 12a,13,14,15 checking in between each. tube was nice, even, and tubes finished at either 15 or 16. consistent with previous note. JW

Passes:

1	1
2	2
3	3
4	4
10	10
11	11
12	12
13	13
14	14
15	15
16	16

(11) (11)



skyservice Work Order Traveler

Sky Service F.B.O. Inc.

DOT APP 53-89 / EASA 145.7142 / BDA AMO 385

WO #: MWO25374	Customer: Dart Aerospace Ltd.	Dept: NDT YUL	Reference: PO29323
Descr:	PN:	S/N:	Qty: 1
Make:	Model:	Reg:	A/C S/N:
TSN:	CSN:	TSO:	
Task: UNSCHEDULED			Sequence: 1

Work Required:

CARRY OUT NDT (LIQUID PENETRANT CRACK TEST) ON THE FOLLOWING FIVE CROSSTUBES:

ID# D206-667-103 FWD CROSSTUBES-HIGH

1 WORK ORDER ID 131490 2-WORK ORDER ID 132092

3.WORK ORDER ID 134198

ID# D206-667-101 CROSSTUBES

4 WORK ORDER ID 112790 5 WORK ORDER ID 134798

8015-07-30

Action Taken:						Date:	Initial/Stamp:
LIQUID PENETRANT INSPECTION CARRIED OUT ON ITEMS LISTED ABOVE (ITEMS 1-5) AS PER ASTM1417M-13						30 Jul 2015	 e
NO CRACK FOUND							
PEN.(ZL-56, MPO13600), DEV.(SKD-S2, MPO11715), CLEANER(SKC-S, MPO13923)							
Description	Location	P/N	Qty	Batch	S/N Off	S/N On	

I certified that the maintenance described above has been performed in accordance with the applicable standard of airworthiness.

Signature: 	ACA/SCA Stamp 	Date: 30 Jul 2015
Name: CHRISTIAN BRIEN		



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO29323

Purchase Order Date 7/30/2015

PO Print Date 7/30/2015

Page Number 2 of 3

Order From :

SKYSERVICE
6120 MIDFIELD ROAD
MISSISSAUGA, ONTARIO L5P 1B1
CANADA

VC-SKY001

Ship To :

DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name

Vendor Phone 905-678-5636

Ship To Contact

Ship To Phone

Ship Via:

Delivered

Ship Acct:

Buyer

Chantal Lavoie

Customer POID

Customer Tax #

10127-2607

Terms

Net 30

Currency

CAD

FOB

FCA - (Free Carrier)

3 131490

D206-667-103RLC
CROSSTUBE

7/30/2015

1.00

\$155.00

\$155.00

Yes

7/30/2015

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR
LPI AS PER ASTM 1417 LEVEL 2

SPT-07-30

Line Total:

\$155.00

4 132092

D206-667-103RLC
CROSSTUBE

7/30/2015

1.00

\$155.00

\$155.00

Yes

7/30/2015

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR
LPI AS PER ASTM 1417 LEVEL 2

Line Total:

\$155.00

5 112790

D206-667-101
CROSSTUBE

7/30/2015

1.00

\$155.00

\$155.00

Yes

7/30/2015

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR
LPI AS PER ASTM 1417 LEVEL 2

Note:

7/30/2015

Work Order ID 131490

Friday, April 10, 2015 7:55:33 AM

131490

Page 1

Item ID: - D206-667-103RLC

Revision ID:

Item Name: Fwd Crosstube - High 206L / L1 / L3 / L4

Start Date: 4/10/2015 Start Qty: 1.00

Required Date: 4/10/2015 Req'd Qty: 1.00

Reference:

Approvals: Process Plan: MJS

Date: 1504-10 Tooling:

QC:

Date: SPC (Y/N):

Accept *N9000040100*

Setup Start *NS1*

Stop *NS2*

Cust Item ID:

Customer:

Run Start *NR1*

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D206-667-143	Rev C (DEO)								
DSI9565	A								
DSI9628	A								
100	Document Control	0.00							
100	DOCUMENT CONTROL								
DC	Memo	0.00							
Doc.Control -USB or Paperwork	Photocopy bluefile and create labels as per PPP D206-667-103 CHG006								
110	Pick Kit	0.00							
110	Packaging								
Packaging	Memo	0.00							
Packaging									

006
27
378

MJS

AUG 18 2015

BL

15/07/08